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Class: VII
Subject: Math's
Topic: Comparing quantities
No. of Questions: 20

Q1. Find the ratio of:

a. Rs 5 to 50 paise
b. 15 kg to 210 g
c. 9 m to 27 cm
d. 30 days to 36 hours

Sol.

a. Rs 5 to 50 paise
1 rupee = 100 paise
5 rupee = 500 paise
$\therefore \frac{Rs5}{50\ paise} = \frac{500}{50} = \frac{10}{1}$
Hence, the required ratio is 10:1.

b. 15 kg to 210 g
1 kg = 1000 g
15 kg = 15000 g
$\Rightarrow \frac{15kg}{210g} = \frac{15000}{210} = \frac{500}{7}$
Hence, the required ratio is 500:7.

c. 9 m to 27 cm
1 m = 100
9 m = 900 m
$\Rightarrow \frac{9cm}{27cm} = \frac{900}{27} = \frac{100}{3}$
Hence, the required ratio is 100:3.

d. 30 days to 36 hours
1 days = 24 hours
30 days = 24 × 30 = 720 hours
$\Rightarrow \frac{30\ days}{36\ hours} = \frac{720}{36} = \frac{20}{1}$
Hence, the required ratio is 20:1.

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Q2. Population of Rajasthan = 570 lakhs and population of UP = 660 lakhs. Area of Rajasthan = 2 km^2 and area of UP = 3 km^2.

a. How many people are there per km^2 in both states.
b. Which State is less populated?

Sol.

a. Population of Rajasthan in 2 km^2 area = 570 lakh
Population of Rajasthan in 1 km^2 area = $\frac{570}{2}$ = 285 lakh
P0pulation of U.P in 3 km^2 area = 1660 lakh
Population of U.P in 1 km^2 area = $\frac{660}{3}$ = 220 lakh
b. It can be observed that population per km^2 area is lesser for UP. Therefore, UP is less populated.

Q3. Convert the given decimal fraction to per cents.

a. 0.65
b. 2.1
c. 0.02
d. 12.35

Sol.

a. 0.65
$0.65 = 0.65 \times 100\ \%$
$= \frac{65\times100}{100}\% = 65\%$
b. 2.1
$2.1 = 2.1 \times 100\ \%$
$= \frac{21\times100}{10}\% = 210\%$
c. 0.02
$0.02 = 0.02 \times 100\ \%$
$= \frac{2\times100}{100}\% = 2\%$
d. 12.35
$12.35 = 12.35 \times 100\ \%$
$\frac{1235\times100}{100}\% = 1235\%$

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Q4. Find

a. 15% of 250
b. 1% of 1 hour
c. 20% or Rs 2500
d. 75% of 1 kg

Sol.

a. 15% of $250 = \frac{15}{100} \times 250 = \frac{75}{2} = 37.5$
b. 1 hour $= 60$ minutes
   1% of 60 minutes $= \frac{1}{100} \times 60 = \frac{3}{5} minutes$
c. 20% of Rs $2500 = \frac{20}{100} \times 2500 = 500$
d. 75% of 1 kg $= \frac{75}{100} \times 1 = 0.75\ kg = (0.75 \times 1000)$ g $= 750$ g

Q5. Out of 15, 000 voters in a constituency, 60% voted. Find the percentage of voters who did not vote. Can you now find how many actually did not vote?

Sol. Percentage of voters who voted $= 60\%$

Percentage of those who did not vote $= 100\% - 60\% = 40\%$

Number of people who did not vote $= 40\%$ of 15000

$= \frac{40}{100} \times 15000 = 6000$

Therefore, 6000 people did not vote.

Q6. A local cricket team played 20 matches in one season. It won 25% of them. How many matches did they win?

Sol. Number of games won $= 25\%$ of 20

$= \frac{25}{100} \times 20 = 5$

Therefore, the team won 5 matches.

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Q7. The population of a city decreased from 25,000 to 24, 500. Find the percentage decrease.

Sol. Initial population = 25,000

Final population = 24,500

Decrease = 500

% decrease = $\frac{500}{25000} \times 100 = 2\%$

Q8. Juhi sells a washing machine for Rs 13, 500. She loses 20% in the bargain. What was the price at which she bought it?

Sol. Selling price = Rs 13,500

Loss % = 20%

Let the cost price be x.

∴ Loss = 20% of x

Cost price – Loss = Selling price

$= x - \frac{20}{100} \times x = 13500$

$x - \frac{1}{5}x = 13500$

$\frac{4}{5}x = 13500$

$x = 13500 \times \frac{5}{4}$

$= 16875$

Therefore, she bought for Rs 16875.

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Q9. If meena gives an interest of Rs 45 for one year at 9% rate p.a. What is the sum she has borrowed?

Sol. S.I$=\frac{P\times R\times T}{100}$

$45=\frac{P\times 9\times 1}{100}$

$P=\frac{45\times 100}{9}$

$=$ Rs 500

Therefore, she borrowed Rs 500.

Q10. The car that I own can go 150 km with 25 litres of petrol. How far can it go with 30 litres of petrol?

Sol. With 25 litres of petrol, the car goes 150 km.

With 1 litre the car will go $\frac{150}{25}km$.

Hence, with 30 litres of petrol it would go $\frac{150}{25}\times 30$ km $=180$ km

Q11. Convert $\frac{5}{4}$ to per cent.

Sol. We have, $\frac{5}{4}=\frac{5}{4}\times 100\%=125\%$

Q12. If 250 is to be divided amongst Ravi, Raju and Roy, so that Ravi gets two parts, Raju three parts and Roy five parts. How much money will each get? What will it be in percentages?

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Sol. The parts which the three boys are getting can be written in terms of ratios as 2 : 3 : 5.

Total of the parts is $2 + 3 + 5 = 10$.

Amounts received by each	**Percentage of money for each**
$\frac{2}{10} \times' 250 = 50$	Ravi gets $\frac{2}{10} \times 100\% = 20\%$
$\frac{3}{10} \times Rs250 = Rs75$	Raju gets $\frac{3}{10} \times 100\% = 30\%$
$\frac{5}{10} \times Rs\ 250 = Rs125$	Roy gets $\frac{5}{10} \times 100\% = 50\%$

Q13. Suhana sells a sofa set for Rs 9600 making a profit of 20%. What is the C.P. of the sofa set?

Sol. Let the CP be Rs 100

Profit (20%) = Rs 20

Therefore, SP = Rs (100 + 20) Rs = 120

If SP is Rs 9600, CP = $\frac{100}{120} \times 9600$

$= Rs\ 8000$

Q14. If Meenakshee pays an interest of Rs 1500 for 4 years on a sum of Rs 2500, find the rate of interest per annum (p.a.)

Sol. P = Rs 2500. T = 4 years, I = Rs 1500

R =?

Now, I = = $\frac{P \times R \times T}{100}$

Therefore, $1500 = \frac{2500 \times R \times 4}{100}$

$R = \frac{1500 \times 100}{2500 \times 4} = 15$

So, the rate fo interest is 15%

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Q15. The sum of the simple interest and the principal gives the_____.

Sol. Amount

Q16. Find the ratio of Rs 500 to 50,000 paise.

a. 1:1
b. 1:2
c. 1:3
d. 1:4

Sol. A (1 Rs.= 100 paise)

Q17. A person divides his income in three equal parts if he gives 2 parts to Ram and 1 part to Shyam. What percentage of money he gives to Ram and Shyam separately.

Sol. Ram's part $= \frac{2}{3} \times 100 = 66\frac{2}{3}\%$

Shyam's part $= \frac{1}{3} \times 100 = 33\frac{1}{3}\%$

Q18. Out of 30 students in a hostel, 8 are going to market, 20 are going to watch T.V, rest of the students are studying. Convert all of them into percentages.

Sol. Percentage of student going to market $= \frac{8}{30} \times 100 = \frac{80}{3}$ or $26\frac{2}{3}\%$

Percentage of students watching T.V $= \frac{20}{30} \times 100 = \frac{200}{3} = 66\frac{2}{3}\%$

Percentage of students studying $= \frac{2}{30} \times 100 = 100 = \frac{20}{3} or\ 6\frac{2}{3}\%$

Q19. Convert the following into fractions and decimals.

a. $24\frac{1}{2}\%$
b. 39.2%

Sol. a. $24\frac{1}{2}\% = \frac{49}{2} \times \frac{1}{100} = \frac{49}{200} or\ 0.245$

$b. 39.2\% = 39.2 / 100 = 0.392$

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Q20. If C.P = Rs x and S.P =Rs y. Profit % is _____.

Sol. profit % = $\left(\frac{y-x}{x}\right) \times 100\%$